

Global Liquid Cold Plates for Energy Storage PCS Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global Liquid Cold Plates for Energy Storage PCS market size was valued at US\$ 94.66 million in 2025 and is forecast to a readjusted size of US\$ 282 million by 2032 with a CAGR of 14.5% during review period.

Liquid Cold Plates for Energy Storage PCS are metal thermal management components used for cooling power conversion systems, bidirectional converters, energy storage inverters, IGBT modules, SiC power modules and related power electronics inside battery energy storage systems. The product mainly covers aluminum alloy cold plates, copper aluminum composite cold plates, stainless steel cold plates, brazed cold plates, vacuum brazed cold plates, friction stir welded cold plates, embedded tube cold plates, extruded channel cold plates and customized power module cold plates. A cold plate is mounted close to or directly onto heat generating power electronics and transfers waste heat into a circulating coolant, which is consistent with the common technical definition of liquid cold plates in power electronics cooling. Its manufacturing process usually includes metal forming, machining, internal channel design, brazing or welding, surface treatment, sealing, pressure testing and cleanliness control. Key specifications include plate size, channel design, coolant flow rate, pressure resistance, thermal resistance, heat dissipation capacity, flatness, leakage rate, corrosion resistance, insulation clearance and mechanical compatibility with converter power modules. The product is mainly used in grid scale energy storage PCS cabinets, containerized energy storage systems, renewable energy storage converters, industrial and commercial storage systems and high power bidirectional power conversion equipment. In 2025, global shipment volume of Liquid Cold Plates for Energy Storage PCS is estimated at about 0.74 million units, with an industry average selling price of about USD 125 per unit and

an industry average gross margin of about 30%.

Liquid Cold Plates for Energy Storage PCS represent a specialized thermal management component within the power electronics supply chain rather than a complete energy storage product. The upstream chain includes aluminum, copper, stainless steel, brazing materials, sealing materials, coolant compatible materials, CNC equipment, welding equipment and leak testing systems. The midstream segment covers cold plate design, channel optimization, brazing, friction stir welding, machining, cleaning, pressure testing and reliability validation. Downstream demand mainly comes from energy storage PCS, bidirectional converters, energy storage inverters, renewable energy storage systems and high power power conversion units. As energy storage systems move toward higher power density, larger containerized architecture and stricter safety requirements, liquid cooling is becoming more important for PCS thermal control, especially where high heat flux IGBT or SiC modules need stable operating temperatures. The competitive landscape is shaped by two groups of suppliers. International players are stronger in high power electronics cold plates, IGBT cold plates, customized thermal solutions and advanced joining processes, while Chinese suppliers benefit from the rapid expansion of energy storage, charging infrastructure and new energy vehicle thermal management supply chains. The industry is moving from general metal cooling plates toward application specific PCS cold plates with better flatness, lower thermal resistance, tighter leak control and improved manufacturability. Capacity investment is mainly concentrated in brazing lines, automated cleaning, pressure testing, machining and module level validation. Some suppliers are also using acquisitions, production line upgrades and cross application expansion to enter higher value power electronics cooling scenarios. Policy and demand conditions remain supportive. Grid flexibility, renewable energy integration, industrial and commercial storage deployment and battery energy storage investment continue to expand the installed base of PCS equipment. The global battery storage sector added 108 GW of capacity in 2025, showing the strength of the downstream market that indirectly supports PCS cooling components. The long term outlook is positive but not without pressure. Growth will be driven by higher liquid cooled PCS penetration, wider use of SiC power devices, higher cycling intensity and stricter reliability requirements. At the same time, pricing pressure, customer designated manufacturing, regional supply chain localization and competition from battery cold plate suppliers may limit margin expansion.

This report is a detailed and comprehensive analysis for global Liquid Cold Plates for Energy Storage PCS market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Base Material and by Application. As the

market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global Liquid Cold Plates for Energy Storage PCS market size and forecasts, in consumption value (\$ Million), sales quantity (Units), and average selling prices (US\$/Unit), 2021-2032

Global Liquid Cold Plates for Energy Storage PCS market size and forecasts by region and country, in consumption value (\$ Million), sales quantity (Units), and average selling prices (US\$/Unit), 2021-2032

Global Liquid Cold Plates for Energy Storage PCS market size and forecasts, by Base Material and by Application, in consumption value (\$ Million), sales quantity (Units), and average selling prices (US\$/Unit), 2021-2032

Global Liquid Cold Plates for Energy Storage PCS market shares of main players, shipments in revenue (\$ Million), sales quantity (Units), and ASP (US\$/Unit), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for Liquid Cold Plates for Energy Storage PCS

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key players in the global Liquid Cold Plates for Energy Storage PCS market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Eaton Corporation, Wieland Microcool, Mersen, Wakefield Thermal, Advanced Cooling Technologies, Advanced Thermal Solutions, Innovative Thermal Solutions, Radian Thermal Products, AVIC

Jonhon Optron Technology Co., Ltd., Changzhou HeatCreate Thermal Management System Co., Ltd., etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Market Segmentation

Liquid Cold Plates for Energy Storage PCS market is split by Base Material and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Base Material, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Base Material

Aluminum Cold Plates

Copper Cold Plates

Copper Aluminum Composite Cold Plates

Stainless Steel Cold Plates

Others

Market segment by Manufacturing Process

Stamping and Brazing

Vacuum Brazing

Friction Stir Welding

CNC Machining and Sealing

Extrusion and End Sealing

Others

Market segment by Cooling Channel Design

Straight Channel

Serpentine Channel

Microchannel

Pin-fin

Hybrid

Others

Market segment by Application

Grid Storage

C&I Storage

Charging Infrastructure

Industrial Power

Others

Major players covered

Eaton Corporation

Wieland Microcool

Mersen

Wakefield Thermal

Advanced Cooling Technologies

Advanced Thermal Solutions

Innovative Thermal Solutions

Radian Thermal Products

AVIC Jonhon Optronics Technology Co., Ltd.

Changzhou HeatCreate Thermal Management System Co., Ltd.

Shenzhen FRD Science and Technology Co., Ltd.

Envicool Technology Co., Ltd.

Nabaichuan New Energy Co., Ltd.

Suzhou Ruidaike Thermal Technology Co., Ltd.

Sanhua Automotive

Zhejiang Yinlun Machinery Co., Ltd.

Anhui Wenxuan New Energy Thermal Management System Co., Ltd.

Dongguan Meijie Metal Products Co., Ltd.

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)

Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)

South America (Brazil, Argentina, Colombia, and Rest of South America)

Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe Liquid Cold Plates for Energy Storage PCS product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Liquid Cold Plates for Energy Storage PCS, with price, sales quantity, revenue, and global market share of Liquid Cold Plates for Energy Storage PCS from 2021 to 2026.

Chapter 3, the Liquid Cold Plates for Energy Storage PCS competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Liquid Cold Plates for Energy Storage PCS breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Base Material and by Application, with sales market share and growth rate by Base Material, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026. and Liquid Cold Plates for Energy Storage PCS market forecast, by regions, by Base Material, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of Liquid Cold Plates for Energy Storage PCS.

Chapter 14 and 15, to describe Liquid Cold Plates for Energy Storage PCS sales channel, distributors, customers, research findings and conclusion.

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